

67760-28

6/26/2009

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



OFFICE OF  
PREVENTION, PESTICIDES,  
AND TOXIC SUBSTANCES

June 26, 2009

Carrie M. Tackema  
Cheminova, Inc.  
1700 Route 23, Suite 300  
Wayne, NJ 07470

Dear Ms. Tackema:

Subject: Submission of amended labeling  
Nufos® 4E  
EPA Registration No. 67760-28  
Your submission dated June 16, 2009; resubmission dated June 18, 2009

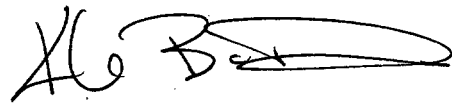
The amended labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, is acceptable with the following comments:

- Correct the spelling of "labeled" throughout the label. (It is currently spelled "labelled.")
- Under the "Tree Fruits and Tree Nuts (Trunk Spray or Preplant Dip)" section, revise the text of the second bullet under the "Specific Use Restrictions" so it reads, "Do not make more than 1 chlorpyrifos application per year in *almonds*, peaches, and nectarines and no more than 3 chlorpyrifos applications per year in cherries."
- Under the "Storage and Disposal" Section, the disposal text must appear under the heading "Container Handling and Disposal." Under the "Pesticide Disposal" heading, add the following text: "*To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).*"
- Under the "Container Handling and Disposal" section (for *both* <5 gallon and >5 gallon containers), revise the second sentence so it reads, "*Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.*"

- For [http://www.cheminova-us.com/pages/products/insecticides/nufos\\_4e.html](http://www.cheminova-us.com/pages/products/insecticides/nufos_4e.html), either remove "fire ants" from the list of pests controlled, or note that the product is for "suppression of fire ants in tobacco only." A control claim requires data.
- For [http://www.cheminova-us.com/pages/products/insecticides/nufos\\_4e.html](http://www.cheminova-us.com/pages/products/insecticides/nufos_4e.html), either qualify "vegetables" (i.e., legume vegetables) under the "Registered for use on" list, or remove "vegetables." The category "vegetables" is too broad, and may be misleading.
- Please note the following: Should you wish to add/retain a reference to the company's website on your label, the website then becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

A stamped copy of the label is enclosed. Please submit two copies of your final printed labeling before you release the product for shipment. Should you have any questions, please contact Julie Chao at 703-308-8735 or [chao.julie@epa.gov](mailto:chao.julie@epa.gov).

Sincerely,

 A handwritten signature in black ink, appearing to read "Venus Eagle", with a stylized flourish extending to the right.

Venus Eagle  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

Enclosure

**RESTRICTED USE PESTICIDE**

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

**CHLORPYRIFOS - BEFORE USING THIS PESTICIDE - STOP - READ THE LABEL**

**NUFOS® 4E**  
Insecticide

For control of listed insects infesting certain field, fruit, nut and vegetable crops

GROUP	1B	INSECTICIDE
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**ACTIVE INGREDIENT:**  
 \*Chlorpyrifos: o,o-diethyl, o-(3,5,6-trichloro-2-pyridinyl) phosphorothioate 44.9%

**\*\*INERT INGREDIENTS:** 55.1%

**TOTAL:** 100.0%

\*This product contains 4 pounds of chlorpyrifos per gallon. \*\*Contains petroleum distillates.

**KEEP OUT OF REACH OF CHILDREN**

**WARNING AVISO**

**AL USUARIO:** Si usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. **(TO THE USER:** If you do not understand the label, find someone to explain it to you in detail)

**IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT, CALL TOLL FREE, DAY OR NIGHT, 1-866-303-6950**

Read the entire label before using this product.  
 Use only according to label instructions.  
 Read the **WARRANTY DISCLAIMER, INHERENT RISKS OF USE, and LIMITATION OF REMEDIES** before buying or using.  
 If terms are not acceptable, return product unopened without delay.

SEE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND USE DIRECTIONS

EPA Reg. No.: 67760-28

EPA Est. No.:

Net Contents: \_\_\_\_\_

Manufactured for:  
 Cheminova, Inc.  
 One Park Drive, Suite 150  
 P.O. Box 110566  
 Research Triangle Park, NC 27709  
[www.cheminova.us.com](http://www.cheminova.us.com)

®Nufos is a registered trademark of Cheminova

**ACCEPTED**  
**With COMMENTS**  
**In EPA Letter Dated:**  
**JUN 26 2009**  
 Under the Federal Insecticide, Fungicide  
 and Rodenticide Act, As amended, for the  
 pesticide Registered under EPA Reg. No:  
67760-28

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**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
KEEP OUT OF REACH OF CHILDREN**

**WARNING**

May be fatal if swallowed. Causes substantial but temporary eye injury or skin irritation. Harmful if absorbed through skin. Do not get in eyes, on skin, or on clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are made of barrier laminate and Viton. For more information, follow instructions in Supplement Three of PR Notice 93-7. If you want more options, follow the instructions for category G on an EPA chemical-resistance category selection chart.

**FOR CONTAINERS HOLDING 2.5 GALLONS OR LESS:**

Mixers, loaders, applicators and all other handlers must wear:

- coveralls over long-sleeved shirt and long pants;
- chemical-resistant gloves;
- chemical-resistant apron when mixing or loading or exposed to the concentrate;
- chemical-resistant footwear plus socks;
- chemical-resistant headgear for overhead exposures;
- a NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter.

**FOR CONTAINERS HOLDING MORE THAN 2.5 GALLONS ONLY:**

Mixers and loaders using a mechanical transfer loading system and applicators using aerial application equipment must wear:

- long sleeved shirt and long pants;
- socks and shoes.

In addition to the above, mixers and loaders using a mechanical transfer loading system must wear:

- chemical-resistant gloves;
- chemical-resistant apron;
- a NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter.

All other mixers, loaders, applicators and handlers must wear:

- coveralls over long-sleeved shirt and long pants;
- chemical-resistant gloves;
- chemical-resistant apron when mixing or loading or exposed to the concentrate;
- chemical-resistant footwear plus socks;
- chemical-resistant headgear for overhead exposures;
- a NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

**ENGINEERING CONTROLS**

**FOR CONTAINERS HOLDING 2.5 GALLONS OR LESS:**

When handlers use closed systems or closed cab motorized ground application equipment in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

**FOR CONTAINERS HOLDING MORE THAN 2.5 GALLONS:**

Mixers and loaders supporting aerial applications must use a mechanical transfer system that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)] for dermal protection, and must:

- wear the personal protective equipment required above for mixers/loaders,
- wear protective eyewear if the system operates under pressure, and
- be provided and have immediately available for use in an emergency, such as a broken package, spill, or equipment breakdown: coveralls, chemical resistant footwear and chemical resistant headgear if overhead exposure.

Pilots must use an enclosed cockpit in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

Use of human flaggers is prohibited. Mechanical flagging equipment must be used.

When handlers use closed cab motorized ground application equipment in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**FIRST AID****Organophosphate**

**IF SWALLOWED:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-303-6950 for emergency medical treatment information.

**NOTE TO PHYSICIAN:** Chlorpyrifos is a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing cardiac and respiratory depression. **Antidote:** Administer atropine sulphate in large doses. TWO to FOUR mg intravenously or intramuscularly as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear. 2-PAM chloride is a pharmacological antidote and may be administered as an adjunct to, but not a substitute for, atropine, which is a symptomatic and often lifesaving antidote. DO NOT GIVE MORPHINE OR TRANQUILIZERS. At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of chlorpyrifos may occur and relapse may occur after initial improvement. VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish, aquatic invertebrates, small mammals and birds. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash water or rinsate.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

**PHYSICAL OR CHEMICAL HAZARDS**

Do not use or store near heat or open flame.

**DIRECTIONS FOR USE  
RESTRICTED USE PESTICIDE**

It is a violation of Federal law to use this product in a manner inconsistent with its labelling. Read all Directions for Use carefully before applying. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. This product cannot be reformulated or repackaged into other end-use products.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exemptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow entry into treated areas during the restricted entry interval (REI). The REI for each crop is listed in the directions for use associated with each crop.

**Exception:** If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

Certified crop advisors or persons entering under their direct supervision under certain circumstances may be exempt from the early reentry requirement pursuant to 40 C.F.R. Part 170.

PPE required for early entry into treated areas that is permitted under the Worker Protection Standard and involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls over short-sleeved shirt and short pants
- Chemical resistant gloves made out of any waterproof material
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for over head exposure

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage and disposal.

**PESTICIDE STORAGE:** Store in original container in secured dry storage area. Protect against strong heat from sunshine or other source. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50 to 70°F and agitate to redissolve crystals. If container is damaged or if the pesticide is leaking or has been spilled, use product immediately or dispose of product and damaged container as indicated below.

**PESTICIDE DISPOSAL:**

**Nonrefillable containers equal to or less than 5 gallons:**

Do not reuse or refill this container. Offer for recycling if available. Triple rinse container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap.

Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**Nonrefillable containers greater than 5 gallons:**

Do not reuse or refill this container. Offer for recycling if available. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank and store rinsate for later use or disposal. Repeat this procedure two more times.

Nufos 4E insecticide is an emulsifiable concentrate for use in listed crops. This product resists washoff once it is dry. Target pests and application rates are provided in the accompanying tables.

Insect control may be reduced at low spray volumes under high temperature and wind conditions.

Some reduction in insect control may occur under unusually cool conditions.

**Flood irrigation:** To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours following a soil surface or foliar application of Nufos 4E.

**INSECTICIDE RESISTANCE MANAGEMENT (IRM)**

Nufos 4E contains a Group 1B insecticide. Insect/mite biotypes with acquired resistance to Group 1B may eventually dominate the insect/mite population if Group 1B insecticides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Nufos 4E or other Group 1B insecticides.

To delay development of insecticide resistance, the following practices are recommended:

- Avoid consecutive use of insecticides with the same mode of action (same insecticide group) on the same insect species.
- Use tank mixtures or premix products containing insecticides with different modes of action (different insecticide groups) provided the products are registered for the intended use.
- Base insecticide use on comprehensive Integrated Pest Management (IPM) programs.
- Monitor treated insect populations in the field for loss of effectiveness.
- Contact your local extension specialist or certified crop advisor for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.

For further information or to report suspected resistance, you may contact Cheminova, Inc. at (800-548-6113) or over the Internet at [www.cheminova.us.com](http://www.cheminova.us.com).

**SPRAY DRIFT MANAGEMENT**

Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland sites, woodlands, pastures, rangelands, or animals.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making decisions to apply this product.

Observe the following precautions when spraying Nufos 4E adjacent to permanent bodies of water such as rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds.

The following treatment setbacks or buffer zones must be utilized for applications around the above listed aquatic areas with the following application equipment:

Application Method	Required Setback (Buffer Zone) (feet)
Ground boom	25
Chemigation	25
Orchard blast	50



Aerial (fixed wing or helicopter)	150
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Making applications when wind is blowing away from sensitive areas is the most effective way to reduce the potential for adverse effects.

The following spray drift **best management practices** are recommended to avoid off-target drift movement from applications.

#### Aerial Application

1. The distance of the outermost nozzles on the boom must not exceed  $\frac{3}{4}$  of the length of the wing span or rotor.
2. Nozzles must always point backward, parallel with the air stream, and never be pointed downward more than 45 degrees.
3. Nozzles must produce a medium or coarser droplet size (255-340 microns volume median diameter) per ASE Standard 572 under application conditions. Airspeed, pressure, and nozzle angle can all effect droplet size. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
4. Applications must not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.
5. Use upwind swath displacement and apply only when wind speed is 3 to 10 mph as measured by an anemometer. Do not apply when wind speed exceeds 10 mph.
6. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

#### Aerial Drift Reduction Advisory

**This section is advisory in nature and does not supercede the mandatory label requirements.**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent adverse effects from drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### Controlling Droplet Size:

- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.
- Nozzle orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator should compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 1.5 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from sensitive areas).

**Ground Boom Application**

The following mandatory spray drift **best management practices** are required to reduce the likelihood of off-target drift movement from ground applications.

1. Choose only nozzles and pressures that produce a medium or coarse droplet size (255-400 microns volume median diameter), per ASAE Standard 572. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
2. Apply with nozzle height no more than 4 feet above the ground or crop canopy.
3. Do not apply product when wind speed exceeds 10 mph as measured by an anemometer.

**Orchard Airblast Application**

The following mandatory spray drift **best management practices** are required to reduce the likelihood of off-target drift movement from airblast applications.

1. Nozzles must be directed so spray is not projected above the canopies.
2. Apply only when wind speed is 3 to 10 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.
3. Outward pointing nozzles must be shut off when turning corners at row ends.

The applicator should take into account the following **best management practices** to reduce off-site spray drift. This section is advisory and does not supercede mandatory label requirements.

1. Number of nozzles, nozzle orientation and spray volume, air speed and wind direction are key factors in adjusting airblast spray delivery to match the height and density of the crop canopy. Airblast equipment should be adjusted to provide uniform coverage while minimizing the amount of spray movement over-the-top or completely through the crop canopy.
  - High air volumes deliver spray more efficiently than air at high speed. Reducing forward travel speed decreases the air speed necessary to deliver the spray to the top of the crop canopy.
  - Use air guides along with the number and orientation of spray nozzles to achieve the desired spray coverage and directional control.
2. The following steps should be taken to minimize drift and the amount of non-target spray:

- Orient nozzles and adjust air speed/volume/direction to force the spray through the crop canopy but not allow drift past the canopy.
- Shut off spray delivery when passing gaps in crop canopy within rows.
- Spray the outside rows of orchards from outside in, directing the spray into the orchard and shutting off nozzles on the side of the sprayer away from the orchard.
- When treating smaller trees, vines or bushes, shut off top nozzles to minimize over-the-top spray movement.

#### **APPLICATION DIRECTIONS**

##### **Broadcast Foliar Application**

Apply with conventional power-operated spray equipment using nozzles and spray pressures recommended for insecticides. Apply Nufos 4E in a spray volume of not less than 2 gallons per acre for aerial application equipment (fixed wing or helicopter) or not less than 10 gallons per acre for ground equipment, unless otherwise specified. Increase spray volume to ensure adequate coverage with increased density and height of crop canopy. See Spray Drift Precautions section for recommendations on droplet size.

**Ground Application:** Orient the boom and nozzles so that uniform coverage is obtained. The swath width should not be wider than the boom. Follow nozzle manufacturer's recommendations for insecticide nozzles with respect to nozzle type, pressure, and spacing.

##### **Broadcast Soil Application**

Apply with conventional power-operated spray equipment that will apply the product uniformly to the soil surface. Use nozzles that produce medium or coarse droplets (235-400 microns). Unless otherwise indicated, a spray volume of 10 gallons or more per acre is recommended. For band application, use proportionally less spray volume.

##### **Aerial Application**

Use a minimum spray volume of 2 gallons per acre and follow recommendations for **best management practices** for aerial application, above.

Marking of swaths by flagging, permanent markers or use of GPS equipment is recommended.

##### **Chemigation (Sprinkler Irrigation)**

Nufos 4E may be applied to the following crops through sprinkler irrigation equipment: alfalfa, citrus (orchard floors only), corn (field and sweet), cotton, cranberry, mint, sorghum, soybeans, sugarbeet, orchard floors (almond, pecan and walnut), and wheat, or other crops as specified in Cheminova supplemental labeling. Do not apply this product by chemigation unless specified in crop-specific directions in this label or Cheminova supplemental labeling. Do not apply to labeled crops through any other type of irrigation system.

**Note:** Unless otherwise indicated in specific use directions, the application rates for chemigation are the same as those recommended for broadcast application.

##### **Use Directions For Sprinkler Irrigation**

The following use directions are to be followed when Nufos 4E is applied through sprinkler irrigation systems. Thoroughly clean the injection system and tank of any fertilizer or chemical residues, and dispose of the residues according to State and Federal laws. Flush the injector with soap and water. Determine the amount of insecticide needed to cover the desired acreage. Mix according to instructions in the Mixing Directions section and bring mixture to desired volume. Do not add crop oil when Nufos 4E is applied by chemigation. Maintain continuous agitation during mixing and throughout the application period. Set the sprinkler system to deliver the desired inches of water per acre. Start the water pump and sprinkler, and let the system achieve the desired pressure and speed before starting the injector. Start the injector and calibrate the injector system according to Calibration instructions in the following **Use Precautions** section. The mixture containing Nufos 4E must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving to ensure uniform application at the correct rate. When the application is finished, flush and clean the entire irrigation and injector system prior to shutting down the system.

### Use Precautions For Sprinkler Irrigation

The following use precautions will result in a safe and successful application of mixtures containing Nufos 4E:

1. Apply this product only through the following sprinkler irrigation systems: center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, micro sprinkler, or hand move. Do not apply this product through any other type of irrigation system. Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.
2. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
3. If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers or other experts.
4. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.
5. A person knowledgeable about the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
6. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow. Refer to the American Society of Agricultural Engineer's Engineering Practice 409 for more information.
7. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
8. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
9. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
10. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
11. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. The metering pump must provide a greater pressure than that of the irrigation system at the point of injection. The pump must meet Section 675 for "Electrically Driven or Controlled Irrigation Machines" NEC 70 and must contain Viton or Teflon seals.
12. To insure uniform mixing of the insecticide into the water line, inject the mixture through a nozzle placed in the fertilizer injection port or just ahead of an elbow or tee in the irrigation line so that the turbulence will assist in mixing. It is suggested that the injection point be higher than the insecticide tank to prevent siphoning.
13. The tank holding the insecticide mixture should be large enough to allow the system to complete the application with one filling. It should be free of rust, fertilizer, sediment, and foreign material, and equipped with an in-line strainer situated between the tank and the injector pump.
14. **Calibration:** In order to calibrate the irrigation system and injector to apply the mixture of Nufos 4E, determine the following:
  1. Calculate the number of acres irrigated by the system
  2. Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area
  3. Calculate the total gallons of insecticide mixture needed to cover the desired acreage. Divide the total gallons of insecticide mixture needed by the number of minutes to cover the treatment area. This value equals the gallons per minute output that the injector must deliver. Convert the gallons per minute to milliliters or ounces per minute. Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the timed output of the injector pump be checked at least twice before operation, and the system monitored during operation.
15. Do not apply when wind speed favors drift beyond the area intended for treatment. End guns must be turned off during the application, if they irrigate non-target areas.
16. Do not allow irrigation water to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.
17. Reentry: Follow requirements in the Agricultural Use Requirements section or crop-specific sections of this label.

- 18. Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.

**MIXING DIRECTIONS**

To prepare the spray, add a portion of the required amount of water to the spray tank and with the spray tank agitator operating add Nufos 4E. Complete filling the tank with the balance of water needed. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture.

Nufos 4E is compatible with insecticides, miticides and fungicides and non-pressure fertilizer solutions commonly recommended except for alkaline materials such as Bordeaux mixture and lime. It is always recommended that a small jar compatibility test be run prior to tank mixing. Prepare tank mixtures in the same manner as recommended above for use of Nufos 4E alone. When tank mixing Nufos 4E with herbicides, add wettable powders first, flowables second, and emulsifiable concentrates last. When a fertilizer solution is involved, it is strongly recommended that a fertilizer pesticide compatibility agent such as Unite or Compex be used. Maintain constant agitation during both mixing and application to ensure uniformity of the spray mixture. Do not allow spray mixtures to stand overnight.

**Tank Mix Compatibility Test:** Test compatibility of the intended tank mixture before adding Nufos 4E to the spray or mix tank. Add proportional amounts of each tank mix ingredient to a pint or quart jar, cap, shake, and let set 15 minutes. Formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used.

**CROP USES**

**ALFALFA**  
(Not for use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a broadcast foliar spray using aircraft or ground spray equipment. Use a higher rate in the rate range for increased pest pressure. Use a minimum spray volume of 2 gallons per acre (gpa) for aerial application (fixed wing or helicopter) or 10 gpa for ground equipment. Use a spray volume of 5 gpa or more by air or up to 20 gpa by ground when foliage is dense and/or pest population is high and/or under high temperature and wind conditions. Some reduction in insect control may occur under unusually cool conditions.

**Chemigation:** may be applied through sprinkler irrigation systems to control listed foliar pests. Use listed broadcast application rates. See (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (pint/acre)
corn rootworm adults (spotted cucumber beetle), grasshoppers, leafhoppers	1/2-1
alfalfa blotch leaf miner, alfalfa caterpillar, alfalfa weevil larvae and adults, armyworms, blue alfalfa aphid, cowpea aphid, cutworms, Egyptian alfalfa weevil larvae and adults (1), pea aphid, plant bugs, spittlebugs, spotted alfalfa aphid (suppression) (not for use in California)	1-2
Alfalfa webworm	1.5

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **In California:** For Egyptian alfalfa weevil control, apply the specified dosage in a minimum of 5 gallons of water per acre when larvae are actively feeding.

**Specific Use Precautions:**

- Nufos 4E should not be tank mixed with other pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination to be non-injurious to alfalfa under current conditions of use. Some phytotoxic symptoms may be observed on young, tender, rapidly growing alfalfa treated with Nufos 4E. Alfalfa will outgrow these symptoms and no yield loss should be expected.
- This product is highly toxic to bees exposed to direct treatment on alfalfa. Do not apply if nearby bees are clustered outside of hives and bees are foraging in the treated area. Protective information may be obtained from your Agricultural Extension Service.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours following an application of Nufos 4E.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not cut or graze treated alfalfa within 7 days after application of 1/2 pint per acre of Nufos 4E, within 14 days after application of 1 pint per acre, or within 21 days after application of rates above 1 pint per acre.
- Do not make more than 4 applications per season of Nufos 4E or other product containing chlorpyrifos or apply any product containing chlorpyrifos more than once per alfalfa cutting.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.

**ASPARAGUS**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a ground broadcast foliar spray. Use sufficient volume of finished spray to ensure thorough coverage of crop foliage. **Note:** Nufos 4E may be applied aerially or with ground equipment for control of armyworms and grasshoppers.

PESTS	NUFOS 4E (pint/acre)
armyworms (1), asparagus aphids (1) asparagus beetles (1), cutworms (2), grasshoppers (1), symphylans (3)	2

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. For **armyworms, asparagus beetles, asparagus aphids** and **grasshoppers**, apply during the fern stage when field counts or crop injury indicates that damaging pest populations are developing or present.
2. For **cutworms**, it is preferable to apply when the soil is moist and worms are active on or near the soil surface.
3. For **symphylans**, apply at least two weeks before harvest for optimum control

**Specific Use Restrictions:**

- Do not make more than 1 preharvest application per season or apply within 1 day of harvest.
- Do not make more than 2 postharvest applications during the fern stage.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate preharvest or postharvest is 1 lb ai chlorpyrifos per acre.
- For use only in the Midwest and Pacific Northwest states.

**CHRISTMAS TREES (NURSERIES AND PLANTATIONS)  
(Not for use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Unless otherwise indicated, apply as a foliar spray using power-operated ground equipment. Thorough coverage of foliage is essential. Use a minimum 10 gpa of finished spray with ground equipment. Use

higher volume of finished spray, 20 gpa or more, when foliage is dense and/or pest density is high and/or under high temperature and wind conditions.

TARGET PESTS	NUFOS 4E
ants (excluding fire ants, harvester ants, carpenter ants, and pharaoh ants), aphids adelgids (cooley and Eastern spruce gall), Douglas fir needle midge European pine sawfly European pine shoot moth grasshoppers gypsy moth mites (1), (European red spider, two spotted spider) pales weevil (adult) pine needle midge pine spittlebug plant bugs scale (pine needle, pine tortoise, spruce bud, black pine and striped pine) (2) spittlebugs spruce budworm spruce needle miner	1 qt/acre
pales weevil (3)	3 qt/100 gal

Numbers in parentheses (-) refer to Pest-Specific Use Directions

**Pest-Specific Use Directions:**

- When large numbers of **spider mite** eggs are present at the first application, a second application after 7 to 10 days may be required to control newly hatched nymphs and maintain effective control.  
**Not for control of mites in Washington and Oregon.**
- For **scale control** apply when scale crawlers are active.
- Apply as a cut stump drench.

**Specific Use Precautions:**

**Phytotoxicity:** Do not apply under conditions of extreme heat or drought stress. Environmental factors and varietal differences significantly influence potential phytotoxic expression. **Testing has shown that chlorpyrifos may be used at recommended rates on the following conifer species without serious phytotoxicity: balsam fir, concolor fir, Douglas fir, eastern white pine, Fraser fir, grand fir, noble fir, Scotch pine, white spruce.** Before treating large numbers of other conifer species, it is recommended that a small block of plants be treated and observed 7 to 10 days for symptoms of phytotoxicity. **Note:** The user assumes responsibility for determining if it is safe to treat other conifer species with Nufos 4E under commercial growing conditions.

**Specific Use Restrictions:**

- Do not make more than 3 applications of Nufos 4E or other product containing chlorpyrifos per season.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 7 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

**CITRUS FRUITS†  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 5 days unless PPE required for early entry is worn.

†calamondin, chironja, citrus citron, citrus hybrids, grapefruit, kumquat, lemon, lime, mandarin (tangerine), pummelo, satsuma mandarin, sour orange, sweet orange, tangelo, tangor

Apply as a concentrate or dilute spray using conventional, power-operated spray equipment. Use a higher rate in rate range when there is increased pest pressure. Use sufficient water to ensure thorough and complete coverage of the foliage and fruit. For dilute sprays (greater than 200 gpa), use a spray concentration of at least 0.5 pints of Nufos 4E per 100 gallons of finished spray. Complete coverage is not necessary for outside canopy sprays targeting certain pests such as lepidoptera insects and katydids. Treat when pests become a problem or in accordance with the local spray schedule as recommended by your State Agricultural Experiment Station, certified Pest Control Advisor, or Extension Service Specialist. To avoid excessive ridging, do not apply Nufos 4E to citrus from December up to the initiation of bloom.

**Use of Spray Oils:** To improve control of aphids, mealybugs, scale insects, and thrips, a petroleum spray oil approved for use on citrus trees may be added to spray mixtures at up to 1.8 gallons per 100 gallons of spray.

TARGET PESTS	NUFOS 4E (pint/acre)	
aphids (including brown citrus aphid)	2 - 7	
glassywinged sharpshooter		
grasshoppers (1)		
katydids		
lepidopterous larvae (such as: avocado leafroller, cutworms, fruit tree leafroller, orange dogs, orange tortrix, western tussock moth)		
mealybugs (see below for Specific Use Precautions in California and Arizona)		
scale insects (such as: black scale, brown soft scale, chaff scale, California red scale (see below for Specific Use Precautions in California and Arizona), Florida red scale, long scale, purple scale and snow scale)		
thrips (see below for Specific Use Precautions in California and Arizona)		
citrus rust mites (2) (Florida only)		4 - 7
Citrus psylla (3) (Florida only)		5
thrips suppression and mealybugs (California and Arizona, see restrictions)	6 - 12	
California red scale (California and Arizona, see restrictions)	8 - 12	

Numbers in parentheses (-) refer to Pest Specific Use Directions

**Pest-Specific Use Directions:**

- Lubber grasshoppers:** Effective control requires direct contact with spray when grasshoppers are small (less than 1 inch in length).
- For control of **citrus rust mites**, use a spray concentration of at least 1 pint per 100 gallons.
- For control of citrus psylla, add citrus oil at 2% v/v in a tank mix with Nufos 4E.

**Specific Use Precautions:**

- Observe local recommendations for tank mix combinations especially with regard to use of Nufos 4E with spray oil. Consult with a county farm advisor, county agency, extension service personnel, agricultural commissioner, or pest control advisor, for local recommendations.
- Do not apply when trees are stressed by drought or high temperatures.
- Nufos 4E is highly toxic to bees exposed to direct treatment and should not be applied when bees are visiting the area. During the citrus bloom period in California, apply from 1 hour after sunset until 2 hours before sunrise.
- Additional Precautions for California and Arizona:** Nufos 4E should not be used in combination with spray oil when temperatures are expected to exceed 95°F the day of application or for several consecutive days thereafter.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not treat within 21 days of harvest for applications of up to 7 pints of Nufos 4E per acre or within 35 days for application of rates above 7 pints per acre.



- In California, the use of application rates greater than 8 pints of Nufos 4E (4 lb ai chlorpyrifos) per acre are allowed only in the following counties: Fresno, Tulare, Kern, Kings, and Madera.
- Do not apply more than 15 pints of Nufos 4E (7.5 lb ai chlorpyrifos) per acre per year.
- Do not make more than 2 applications of Nufos 4E or other products containing chlorpyrifos per year (does not include citrus orchard floors).
- Do not make second foliar application of Nufos 4E or other product containing chlorpyrifos within 30 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

**CITRUS ORCHARD FLOORS  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 5 days unless PPE required for early entry is worn.

Apply as a ground broadcast spray directed to the orchard floor to control foraging ants and suppress mounds. Do not apply spray to contact foliage or fruit. Apply in a total spray volume of 25 gpa or more using equipment that will apply the spray uniformly to the soil surface. Use a higher rate in the rate range for increased pest pressure. For best results, remove weed growth or other obstructions that might prevent the spray from reaching the soil surface. Foliar applications of Nufos 4E or other products containing chlorpyrifos may be made in addition to the orchard floor treatments but must comply with the 10 day re-treatment interval (see Specific Use Restrictions).

**Chemigation:** Nufos 4E may be applied to citrus orchard floors through sprinkler irrigation systems only if the system uniformly covers the soil surface at the base of the tree. Apply at listed broadcast application rates to control listed pests. See Sprinkler Irrigation section for application instructions.

**Note:** Do not apply in tank mixtures with Evik Herbicide.

TARGET PESTS	NUFOS 4E (pint/acre)
Ant species (excluding fire ants, harvester ants, carpenter ants, and pharaoh ants)	1 ½ - 2

**Applications with Dry Bulk Fertilizer:** Most dry fertilizers can be used for impregnation with Nufos 4E. Apply Nufos 4E at the equivalent broadcast rate using a minimum of 200 lb per acre of dry bulk fertilizer.

**Impregnation of Dry Bulk Fertilizer:** Use a closed rotary drum mixer suitable for blending of dry bulk fertilizer equipped with an internal spray nozzle. Add the dry fertilizer to the mixer followed by the appropriate label rate of Nufos 4E. After mixing the dry ingredients to ensure uniformity, add water through the spray nozzle in an amount sufficient to just dampen the mixture (4 to 8 pints of water per ton of fertilizer). The spray nozzle should be positioned within the mixer to provide uniform coverage of the tumbling mixture of fertilizer and Nufos 4E. Addition of water will cause Nufos 4E to uniformly adhere to the dry bulk fertilizer. Bulk fertilizers impregnated with Nufos 4E should be applied immediately, **not stored**. Foliar applications of Nufos 4E may be made in addition to the orchard floor treatments.

Compliance with any and all federal and state laws and regulations relating to Nufos 4E and fertilizer mixture is the responsibility of the person offering such mixture for sale or distribution.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply last treatment within 28 days before harvest.
- Do not apply more than 3 quarts of Nufos 4E (3 lb ai chlorpyrifos) per acre per year.
- Do not make more than 3 applications of Nufos 4E or other products containing chlorpyrifos per year (does not include foliar applications to citrus trees).
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.
- Do not allow meat or dairy animals to graze in treated areas.

**COLE CROP (BRASSICA) LEAFY VEGETABLES AND RADISH, RUTABAGA, AND TURNIP**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours (3 days for cauliflower) unless PPE required for early entry is worn.

**Soil Application**

Apply as indicated in Pest-Specific Use Directions. Use a higher rate in the rate range when there is increased pest pressure.

Crop	Target Pests	Nufos 4E (fl oz/1000 ft of row)
Cauliflower	Root maggot (1)	1.2
Broccoli Brussels sprout Cabbage Chinese cabbage Collard Kale Kohlrabi Turnip	Root maggot (1)	1.6-2.75
Broccoli Cabbage	Root aphid (2)	1.2 (2.4 for double row plantings)
Radish	Root maggot (3)	0.5
Rutabaga	Root maggot (1)	1.6

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Root maggot:**
  - **Direct seeded crops (cauliflower, broccoli, Brussels sprout, cabbage, Chinese cabbage, collard, kale, kohlrabi, turnip, rutabaga):** Apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time. Band placement should be behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Use a minimum of 40 gpa total spray volume.
  - **Transplanted crops (cauliflower, broccoli, Brussels sprout, cabbage, Chinese cabbage, collards, kale, kohlrabi, and turnip):** Apply Nufos 4E as a water-based spray directed to the base of the plants immediately after setting. Use a minimum of 40 gpa total spray. Do not add any additional adjuvants, surfactants or spreader stickers. Do not apply as a foliage application.
2. **Root aphid (broccoli, cabbage):** Apply Nufos 4E in water or with liquid fertilizer injected as a sidedress on each side of the row after plants are established. See Mixing Directions section for Mixing Instructions for Liquid Fertilizer. Avoid mechanical damage to crop roots. Use a minimum of 15 gpa of total spray volume.
3. **Root maggot (radish):** Apply the specified dosage as a water-based drench in the seed furrows with the seed at planting time. Use a minimum of 40 gpa of total drench.

**Specific Use Restrictions:**

- **Cauliflower:** Do not apply more than 2 pints of Nufos 4E to cauliflower planted in 40-inch rows. Use proportional amounts for other row spacings, but do not exceed 4 pints per acre of Nufos 4E. Do not make more than 1 soil application per crop. The maximum application rate for cauliflower is 1.2 oz ai chlorpyrifos per 1000 ft. of row. The preharvest interval (PHI) for cauliflower is 30 days.
- **Broccoli, Brussels Sprout, Cabbage, Chinese Cabbage, Collard, Kale, Kohlrabi, and Turnip:** Do not apply within 30 days of harvest. Do not make more than 1 soil application per crop. Do not apply more than 2.6 pints of Nufos 4E per acre when planted in 40-inch rows. Do not apply more than 4.5 pints of Nufos 4E per acre to these crops when in 20-inch rows (or 2 rows per bed). Use proportional amounts for other row spacings, but do not exceed 4.5 pints per acre of Nufos 4E.

- **Radish:** Do not apply more than 5.5 pints of Nufos 4E per acre. Do not make more than 1 soil application per crop. The maximum application rate for radish is 0.5 oz ai chlorpyrifos per 1000 ft. of row. The preharvest interval (PHI) for radishes is 7 days.
- **Rutabaga:** Do not apply more than 4.5 pints of Nufos 4E per acre. Do not make more than 1 soil application per crop. Do not use rutabaga tops for food or feed purposes. The maximum application rate for rutabaga is 1.6 oz ai chlorpyrifos per 1000 ft. of row. The preharvest interval (PHI) for rutabagas is 7 days.
- **Soil applications (all labelled crops):** Do not foliar apply any chlorpyrifos product labelled for foliar application within 10 days of a soil application of Nufos 4E.

**Foliar Application (Brussels Sprout Only)**

Apply with conventional power-operated spray equipment in 20 to 150 gpa of water. Use a higher rate in the rate range when there is increased pest pressure. Consult your state agricultural experiment station, extension service specialist, or integrated pest control advisor for proper time to treat in your area.

Crop	Target Pests	Nufos 4E (pint/acre)
Brussels Sprout	Armyworms Cabbage aphid Cutworms Imported cabbage worm Striped flea beetle (adult)	1-2

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest.
- Do not make more than 3 applications of products containing chlorpyrifos per crop.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.

**CORN (FIELD CORN AND SWEET CORN, INCLUDING CORN GROWN FOR SEED)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Conservation Tillage: Preplant, At-Plant, or Preemergence Applications**

Apply as a broadcast spray to the soil surface using power-operated ground spray equipment. Use a total spray volume of 20 gpa or more. Use a higher rate in the rate range to extend residual control.

**Tank Mixing:** Nufos 4E may also be applied in tank mixtures with paraquat or glyphosate and/or liquid fertilizer solutions. See Mixing Directions section for tank mixing instructions. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for each product used in combination with Nufos 4E.

TARGET PESTS	NUFOS 4E (pint/acre)
Armyworms Cutworms	1-2

**Postemergence Application**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gallons per acre (gpa) for ground spray equipment or 2 to 5 gpa for aircraft equipment. Control may be reduced at low spray volumes under high temperature and wind conditions. Nufos 4E may be tank-mixed with glyphosate products such as Glyphos® herbicide when application is to be made to glyphosate-tolerant corn. **Note:** Do not apply aerially in Mississippi.

**Chemigation:** Nufos 4E may be broadcast applied postemergence through sprinkler irrigation systems at listed application rates to control listed foliar pests. For best results, tank mix Nufos 4E with 2 pints of non-emulsifiable oil. See Chemigation (Sprinkler Irrigation) section on the product label for application instructions.

TARGET PESTS	NUFOS 4E (pint/acre)
grasshoppers	1/2 - 1
aphids, armyworms, chinch bugs (1); corn rootworm adults (2), cutworms (3), European corn borer (5), flea beetle adults (1), southern corn leaf beetle, webworms (4), Western bean cutworm	1 - 2
corn earworm, Southwestern corn borer (6)	1 1/2 - 2
billbugs (1), common stalk borer (9), corn rootworm larvae (7) (8), lesser cornstalk borer	2

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

1. For best **billbug**, **chinch bug**, or **flea beetle** control, ground apply in a minimum spray volume of 20 to 40 gpa at 40 psi. If corn is less than 6 inches tall, apply in a 9- to 12-inch wide band over the row. For corn greater than 6 inches tall, apply using drop nozzles directed to the base of the plant. Do not reduce the application rate for banded or directed applications. Concentrate the full labeled dosage rate in the treated zone. When chinch bugs continue to immigrate to corn over a prolonged period or under extreme pest pressure, a second application may be needed.
2. The recommended dosage will control silk clipping by **corn rootworm adults**.
3. For **cutworms**, it is preferable to apply Nufos 4E when soil is moist and worms are active on or near the soil surface. If ground is dry, cloddy, or crusted at time of treatment, worms may be protected from the spray and effectiveness will be reduced. Shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment may improve control. A second application may be required if damage or density levels exceed economic thresholds established for your area.
4. For **webworm** control, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment is necessary.
5. For **European corn borer** control, use 1 1/2 to 2 pints per acre when application is made with power-operated ground or aerial equipment or 1 to 2 pints per acre when application is made through a sprinkler irrigation system. University research indicates that achieving greater than 50% control of first-generation European borer with a single liquid insecticide treatment is highly dependent upon timing, insecticide placement, and weather conditions.
6. For **southwestern corn borer**, a second application may be applied 21 days later if needed due to reinfestation.
7. For postemergence control of **corn rootworm larvae** apply at cultivation. Direct the spray to both sides of the row at the base of the plants just ahead of the cultivator shovels. Cover the insecticide with soil around the brace roots. A cultivation application of Nufos 4E may be made in addition to an at-planting application of Nufos 15G insecticide.
8. Nufos 4E may also be applied through sprinkler irrigation systems at the rate of 2 pints per acre to control **corn rootworm larvae**. Time application to coincide with the appearance of the second instar larvae. Apply with enough water to wet the root zone to the depth control needed. If soils are wet, allow enough soil drying to occur such that an application using a minimum amount of water will not produce surface runoff. See Chemigation (Sprinkler Irrigation) section for application instructions.
9. Do not use Nufos 4E in combination with a burndown herbicide for control of common stalk borer. For **common stalk borer** control, treat approximately 11 days after application of glyphosate or after burndown with paraquat herbicide is complete (3 to 5 days).

#### Specific Use Restrictions:

- **Preharvest Interval:** Do not apply within 21 days before harvest of grain or ears.
- Do not apply more than 6 pints of Nufos 4E (3 lb ai chlorpyrifos) per acre per season.
- Do not make more than 3 applications of any product containing chlorpyrifos per season, including the maximum allowed of 2 granular applications, at the 1 lb ai chlorpyrifos rate.

- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 2 pints of Nufos 4E (1 lb ai chlorpyrifos) per acre.
- If more than 1 lb ai granular chlorpyrifos per acre is applied at-plant (for a maximum of 1.3 lb ai per acre per season), only 1 additional application of a liquid product containing chlorpyrifos at 1 lb ai per acre is allowed per season, for a total of 2.3 lb ai chlorpyrifos per acre per season.
- Do not apply in tank mixes with Steadfast or Lightning herbicides.

**COTTON**  
(Not for Use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a broadcast foliar spray using aircraft or ground spray equipment in all states except Arizona and California. Use a higher rate in the rate range when there is increased pest pressure. Use sufficient spray volume to ensure thorough coverage of treated plants, but no less than 10 gpa for ground spray equipment or 2 gpa for aircraft equipment. Increase spray volume when foliage is dense and/or pest population is high and/or under high temperature and wind conditions. Treat when field counts indicate damaging insect populations are developing or present.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

Proper application methods are necessary to ensure thorough spray coverage and correct rate, and minimize off-target drift. Follow Application Guidelines for ground and aerial application and Spray Drift Management recommendations in General Information section of this label.

**All States Except Arizona and California**

TARGET PESTS	NUFOS 4E (pint/acre)
cotton fleahopper (1), plant bugs (1) ( <i>Lygus</i> , <i>Mirids</i> )	3/8-1
grasshoppers, thrips	1/2-1
cotton aphids, fall armyworm, yellowstriped armyworm	1/2-2
spider mites (2)	1
beet armyworms, cotton bollworm (3), tobacco budworm (3), cutworms, pink bollworms, salt marsh caterpillar	1 1/2-2

Numbers in parentheses (-) refer to Pest Specific Use Directions.

**Pest-Specific Use Directions:**

1. The 3/8 pint per acre rate will not provide a high degree of control but, compared to the 1 pint per acre rate, will minimize the damage from **plant bugs** and **cotton fleahoppers** and allow increased survival and build-up of beneficial insects to aid in the control of **bollworms** infesting cotton.
2. **Spider mites:** When large numbers of eggs are present, scout the treated area in 3 to 5 days. If newly hatched nymphs are present, make a follow-up application of a non-chlorpyrifos product that is effective against mites.
3. **Bollworms and budworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are 1/4-inch or less in length.

**Arizona and California**

TARGET PESTS	NUFOS 4E (pint/acre)
armyworms, cotton aphid, cotton fleahoppers, <i>Lygus</i> , salt marsh caterpillar, silverleaf whitefly (1), thrips	1-2

cotton bollworm (2), cotton leaf perforator (suppression), spider mites (suppression), tobacco budworm (2), boll weevil, cutworms, pink bollworm	2
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Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Silverleaf whitefly:** Apply in tank mix combination with the recommended rate of a pyrethroid insecticide labelled for control or suppression.
2. **Bollworms and budworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are ¼-inch or less in length.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days before harvest.
- Do not apply more than 6 pints of Nufos 4E (3 lb ai chlorpyrifos) per acre per season.
- Do not make more than 3 applications of Nufos 4E or other products containing chlorpyrifos per crop season.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.
- Do not allow meat or dairy animals to graze in treated areas.
- Do not feed gin trash or treated forage to meat or dairy animals.

**CRANBERRY  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a broadcast foliar spray. Use sufficient spray volume to ensure thorough coverage, but no less than 15 gpa. Except for control of cranberry weevil, treat when field counts indicate damaging insect populations are developing or present.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems to control listed pests. Apply at listed broadcast application rates. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (pint/acre)
brown spanworm cranberry fruitworm cranberry weevil (1) cutworms, fireworms Sparganothis fruitworms	3

Numbers in parentheses (-) refer to Pest Specific Use Directions.

**Pest-Specific Use Directions:**

1. For **weevil** control, apply once at flower bud development (late May, early June) and, if weevils are present, once after 100% bloom (early to mid-July).

**Specific Use Precautions:**

Apply only after the winter flood water has been removed. To avoid pesticide contamination of flood waters, do not apply when bogs are flooded.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 60 days before harvest.
- Do not make more than 2 applications of Nufos 4E or other product containing chlorpyrifos per season.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 1.5 lb ai chlorpyrifos per acre.

**FIG  
(California Only)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

Apply Nufos 4E as a dormant application in late winter prior to beetle emergence and prior to leaf formation. Use a spray volume of 10 gpa or more and apply as a broadcast spray to the soil surface using power-operated ground spray equipment. On the day of treatment, incorporate Nufos 4E into the top 3 inches of soil using suitable equipment.

TARGET PEST	NUFOS 4E (pints/acre)
dried fruit beetle	4

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 7 months (210 days) of harvest.
- Make only 1 application per year of Nufos 4E or other product containing chlorpyrifos.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre.

**GRAPES  
(Areas East of the Continental Divide Only)  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Soil Surface Application**

Apply Nufos 4E just before the pest emerges from the soil. Apply 2 quarts of the diluted spray mixture to the soil surface on a 15-square foot area (4.4 ft circle) around the base of each vine.

TARGET PEST	NUFOS 4E (pint/100 gal)
grape borer	4 ½

**Specific Use Precautions:**

- Do not allow spray to contact fruit or foliage.

**Prebloom Application**

Apply as a spray drench ground application using a minimum spray volume of 25 gpa.

TARGET PEST	NUFOS 4E (pints/acre)
climbing cutworm	1

**Specific Use Precautions:**

- Do not use in conjunction with soil surface application for grape borer control.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 35 days before harvest.
- Do not make more than 1 application per season of Nufos 4E or other product containing chlorpyrifos.
- Maximum single application rate for soil surface application is 2.25 lb ai chlorpyrifos per 100 gallons.
- Maximum single application rate for prebloom application is 1 lb ai chlorpyrifos per acre.
- Based upon available residue data, the use of Nufos 4E in grapes is restricted to areas east of the Continental Divide only.

**LEGUME VEGETABLES (SUCCULENT OR DRIED) EXCEPT SOYBEAN†**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

†adzuki bean, bean, blackeyed pea, broad bean (dry and succulent), catjang, chickpea, cowpea, crowder pea, English pea, filed bean, field pea, garden pea, grain lupin, green pea, guar, lima bean (dry and green), kidney bean, lablab bean, lentil, moth bean, mung bean, navy bean, pea, pigeon pea, pinto bean, rice bean, southern pea, sweet lupin, tepary bean, curd bean, white lupin, white sweet lupin

**Preplant Broadcast Application**

Apply Nufos 4E at a rate of 2 pints per acre to control seed maggots. Make a preplant broadcast application in a minimum of 10 gpa of spray to the soil surface using suitable ground equipment. To improve the activity against seed maggots, Nufos 4E must be incorporated into the top 1 to 3 inches of soil using suitable tillage equipment.

**At Plant T-Band Application**

Apply 1.8 fl. oz. of Nufos 4E per 1000 feet of row at 30-inch row spacing. Apply the spray in a 2 to 5 inch wide band over the row behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Mix the specified dosage in a minimum of 10 gpa of spray and apply to the soil surface using suitable ground spray equipment. Equivalent rates of insecticide spray required per 100 feet of row for various row spacing are given in the accompanying table. To improve the activity of Nufos 4E against seed maggots, incorporate the Nufos 4E into the top ½ to 1-inch of soil using tines or chains or other suitable equipment.

Spray Volume Per Acre (gallons)	fl oz of Spray Volume per 100 Feet of Row			
	30-inch	28-inch	24-inch	22-inch
10	7.3	6.9	5.9	5.4
15	11	10.3	8.8	8.1
20	14.7	13.7	11.8	10.8

**Specific Use Precaution:** Insecticides, including Nufos 4E, may contribute to the stress of the bean plant under certain environmental conditions. This stress may reduce plant stand or interfere with normal plant development. Herbicides used preplant incorporated may interact with insecticides and enhance this stress.

**Specific Use Restrictions:**

- Do not make more than 1 application per year.
- Do not apply more than 2 pints of Nufos 4E per acre.
- Do not apply Nufos 4E at-plant if the field was treated with a preplant incorporated treatment of Nufos 4E.

**MINT  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a broadcast spray using a total spray volume of 10 gpa or more using ground equipment.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (pint/acre)
cutworm (1)	2 - 4
garden symphylans (2) mint root borer (3)	4

Numbers in parentheses (-) refer to Pest-Specific Use Directions.



**Pest-Specific Use Directions:**

1. **Cutworms:** Apply during May and June when field counts indicate damaging insect populations are developing or present. When larvae are less than ¾ inch in length, use the 2 pint rate; otherwise, use the higher rate.
2. **Garden symphylans:** Apply preplant to the soil surface. On the same day of treatment, incorporate the insecticide into the top 2. to 4 inches of soil using a disc, field cultivator, or equivalent equipment.
3. **Mint borer:** Apply postharvest when field counts indicate damaging insect populations are developing or present. If ground applied, follow with approximately 1 acre inch of sprinkler irrigation immediately after application to incorporate the insecticide into the soil or apply by chemigation.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 90 days before harvest.
- Make only 1 application of Nufos 4E or other product containing chlorpyrifos during the growing season.
- Do not make more than 1 preplant incorporated application in the spring.
- Make only 1 postharvest application per season of Nufos 4E or other products containing chlorpyrifos.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre.
- Do not use in conjunction with a broadcast foliar application of Nufos 4E for cutworm control.

**ONION (DRY BULB)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**At-Plant Soil Drench Application**

For direct seeded onions to control onion maggot, apply Nufos 4E in a water-based spray as a 2-to-4-inch wide band over the row at planting time in a minimum of 40 gpa. Equivalent rates of insecticide spray required per 1000 feet of row for various row spacings are given in the accompanying table. Shallow incorporation is necessary. Placement behind the planter shoe and in front of the presswheel is recommended. Phytotoxicity may occur if Nufos 4E is sprayed directly onto onion seeds. Do not mix Nufos 4E with other pesticide products. **Note:** The user should exercise reasonable judgement and caution with this product. Until familiar with results under user planting and growing conditions, limit application of this product to a small area to determine plant tolerance and extent of injury if such occurs prior to initiating large scale applications.

Row Spacing	Nufos 4E (fl oz/1000 ft of row)			
	6-inch	10-inch	12-inch	18-inch
32 fl oz/acre	0.37	0.61	0.73	1.1

**Specific Use Restrictions:**

- Do not make more than 1 application per year.
- Maximum single application rate is 0.03 lb ai chlorpyrifos per 1000 feet of row.

**Postplant Soil Drench Application**

Apply as an early season directed spray to the base of onion seedlings or transplants during peak egg laying. Use a minimum of 100 gpa for thorough wetting.

TARGET PEST	NUFOS 4E (pints/acre)
onion maggot	1

**Specific Use Restrictions**

- **Preharvest Interval:** Do not harvest within 60 days of application.
- Do not make more than 2 applications (at plant plus postplant) per year.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.

**ORCHARD FLOORS - ANT CONTROL (EXCLUDING FIRE, CARPENTER, HARVESTER, AND PHARAOH ANTS) IN ALMOND, PECAN AND WALNUT  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a ground broadcast spray directed to the orchard floor using ground application equipment that will apply the spray uniformly. Do not allow spray to contact foliage or fruit. Treat when ant activity becomes evident in the orchard. Since worker ants cease most of their foraging activity at temperatures above 90°F, best results will be achieved if applied at a time of day when temperatures are below 90°F.

**Chemigation:** Nufos 4E may be applied to almond, pecan and walnut orchard floors through sprinkler irrigation systems only if the system uniformly covers the soil surface at the base of the tree. Use listed broadcast application rates to control listed pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	CROP	NUFOS 4E (pint/acre)
Ants (excluding fire, carpenter, harvester, and pharaoh ants)	Walnuts	4 – 8
	Almonds	
	Pecans	4

Eliminate weed growth that would prevent uniform coverage of the orchard floor by mowing or herbicide treatment. Foliar applications of Nufos 4E may be made in addition to the orchard floor treatment.

**Specific Use Precaution:**

- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Nufos 4E.

**Specific Use Restrictions:**

- Preharvest Interval: Walnuts and almonds:** Do not apply the last treatment within 14 days of harvest. **Pecans:** Do not apply the last treatment within 28 days of harvest.
- Do not apply more than 8 pints of Nufos 4E (4 lb ai chlorpyrifos) per acre per season to the orchard floor.
- Do not make more than 1 application at 8 pints or 2 applications at 4 pints of Nufos 4E or other products containing chlorpyrifos per season to the orchard floor.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated orchards.

**PEANUT**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply to the soil surface as a preplant broadcast spray followed by immediate soil incorporation to a depth of 3 to 4 inches. Use a minimum of 10 gpa total spray.

TARGET PEST	NUFOS 4E (pint/acre)
wireworms (suppression)	4

**Specific Use Restrictions**

- Preharvest Interval:** Do not harvest within 21 days after treatment.
- The combined total of preplant and postplant applications of Nufos 4E, Nufos 15G or other products containing chlorpyrifos must not exceed 4 lb ai chlorpyrifos per acre per season.
- Do not make more than 1 preplant application of Nufos 4E per season.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre.
- Aerial application to peanuts is prohibited.
- Do not feed treated peanut forage or hay to meat or dairy animals.

**PEAR**  
(For Use in California, Oregon and Washington)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Postharvest Application**

Mix the specified dosage in 100 to 400 gpa of spray and apply using an airblast speed sprayer or other suitable ground equipment.

Target Pest	Nufos 4E (pint/acre)
Codling moth	4

**Specific Use Restrictions:**

- Do not apply more than 4 pints of Nufos 4E (2 lb. ai chlorpyrifos) per acre per season.
- Do not make more than 1 postharvest application (prior to dormancy) per year.
- Do not harvest or use treated fruit for food or feed.
- Do not allow meat or dairy animals to graze in treated orchards.
- If unauthorized entry into a treated field cannot be prevented, then the orchard must be posted with the appropriate signs specifying the health risks involved to deter entry by people while treated, unharvested fruit remains on the tree.

**POST-BLOOM APPLICATION TO APPLE TREE TRUNK  
FOR BORER CONTROL**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

TARGET PEST	NUFOS 4E (qt/100 gal)	Specific Use Directions
American plum borer apple bark borer broad necked root borer dogwood borer flatheaded appletree borer roundheaded apple tree borer tilehorned prionus	1 ½	Mix with water and apply directly to trunk from a distance of no more than 4 ft using low volume handgun or shielded spray equipment. Do not allow spray to contact foliage or fruit.

**Restrictions:**

- This product may not be used if a pre-bloom application of any other product containing chlorpyrifos has been made during the year.
- Treat only the lower 4 feet of the apple tree trunk.
- Do not make more than one (1) post-bloom trunk application per year.
- Do not apply when wind speed is greater than 10 mph.
- Do not apply within 28 days of harvest.
- Do not allow meat or dairy animals to graze in treated orchards.
- Do not enter or allow worker entry into treated areas during the restricted entry interval of 4 days unless PPE required for early entry is worn.
- Workers making applications by groundboom sprayer must wear basic protective clothing (long-sleeved shirt, long pants, socks and shoes), gloves, and a respirator with a protection factor of 5 (PF5); workers making applications by shielded hand gun must wear basic protective clothing (long-sleeved shirt, long pants, socks and shoes), coveralls and gloves.

**SORGHUM, GRAIN SORGHUM (MILO)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. **Note:** Do not aerially apply in Mississippi. Control may be reduced at low spray volumes under high temperature and wind conditions.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (Pint/acre)
sorghum midge (1)	½
grasshoppers, yellow sugar cane aphid and other aphids	½ - 1
greenbug (2)	½ - 2
armyworms, chinch bugs (3), cutworms, lesser cornstalk borer (3)	1-2
webworms	1
European and Southwestern corn borer	1½-2
corn earworm	2

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- Sorghum midge:** Apply when 30% to 50% of the seed heads are in bloom.
- Greenbug:** Use a higher rate within the indicated rate range when pest populations are high.
- Chinch bugs and lesser cornstalk borer:** Apply as a directed spray toward the base of the plant using power-operated ground spray equipment with sufficient water to ensure coverage of an 8- to 12-inch band centered in the row. For plants less than 6 inches high, apply an 8- to 12-inch centered over the row. Do not reduce the dosage for banded or directed applications. Concentrate the full labelled dosage rate in the treated zone.

**Specific Use Precautions:**

- To minimize the potential for chemical injury, do not apply Nufos 4E to drought stressed grain sorghum within 3 days following irrigation or rain except where the product is applied in irrigation water.
- Be aware that sorghum lines used in seed production fields may be more susceptible to chemical injury. Susceptible inbred lines or hybrids are likely to be at greater risk of yield-reducing chemical injury when treated at the higher rates of application. Do not apply more than 1 pint per acre of Nufos 4E to seed sorghum if the additional risk of crop injury is unacceptable.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not harvest for grain, forage, fodder, hay, or silage within 30 days after application of 1 pint of Nufos 4E per acre or within 60 days after application of rates above 1 pint per acre.
- Do not apply more than 3 pints of Nufos 4E (1.5 lb ai chlorpyrifos) per acre per season.
- Do not make more than 3 applications of Nufos 4E or other products containing chlorpyrifos for a total of 1.5 lb. ai chlorpyrifos per use season. If the application rate of 2 pints Nufos 4E (1 lb. ai chlorpyrifos) is used, then only one additional application of no more than 1 pint Nufos 4E (0.5 lb. ai chlorpyrifos) may be made.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.

- Maximum single application rate is 1 lb ai chlorpyrifos per acre.
- Do not treat sweet varieties of sorghum.

**SOYBEAN**  
(Not for Use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Soil Application**

Apply as a broadcast treatment to soil surface in a minimum spray volume of 10 gpa using suitable ground spray equipment or as a band application. Use a higher rate in the rate range when there is increased pest pressure. For band application, equivalent rates of insecticide spray required per 100 feet of row for various row spacing are given in the accompanying table. For at-plant treatments apply in a 4 to 6 inch band centered over the row. Position the spray nozzle in front of the planter shoe or press wheel or after the press wheel followed by a drag chain for light incorporation. **Do not apply as an in-furrow treatment.** For postemergence rescue treatments, apply as a directed spray in a 9 to 12-inch band at the base of the plant. For plants less than 6 inches tall, apply over the top in a 6- to 12-inch band.

TARGET PESTS	AT-PLANT TREATMENT (Broadcast, T-band or band) (pint/acre)	POSTEMERGENCE RESCUE TREATMENT (band only) (pint/acre)
cutworms lesser cornstalk borer	1 -2	1 -2

Fluid Ounces of Spray Required Per 100 Feet of Row for Various Row Spacings and Spray Volumes				
Volume of Spray Per Acre	36"	32"	28"	24"
10 gallons	8.8	7.9	6.9	5.9
15 gallons	13.2	11.8	10.3	8.8
20 gallons	17.6	15.7	13.7	11.8

**Foliar Application**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Apply when field counts indicate damaging pest populations are developing or present. Nufos 4E may be tank mixed with glyphosate products such as Glyphos® when application is to be made to glyphosate-tolerant soybeans. Use a higher rate in the rate range when there is increased pest pressure.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (Pints/acre)
grasshoppers, green cloverworm, velvetbean caterpillar, spider mites (1)	½-1
armyworms, bean leaf beetle, corn earworm, cutworms, Mexican bean beetle, painted lady butterfly, potato leafhopper, saltmarsh caterpillar and other woolly bears, soybean aphid, thistle caterpillar	1-2
European corn borer, southern green stink bug	2

Numbers in parentheses (-) refer to Pest-Specific Use Directions

**Pest-Specific Use Directions:**

1. **Spider mites:** When large numbers of eggs are present, scout the treated area in 3 to 5 days. If newly hatched nymphs are present, make a follow-up application of a non-chlorpyrifos product that is effective against mites.

**Specific Use Precaution:**

- On determinate soybeans, do not apply more than one application after pod set.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply last treatment within 28 days before harvest.
- Do not apply more than 6 pints of Nufos 4E (3 lb ai chlorpyrifos) per acre per season.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 14 days of the first application.
- Do not make more than 3 applications per year of Nufos 4E or other products containing chlorpyrifos.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.
- Do not allow meat or dairy animals to graze in treated areas or otherwise feed treated soybean forage, hay and straw to meat or dairy animals.

**STRAWBERRY  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Preplant Incorporation Treatment**

Apply Nufos 4E in sufficient water to ensure uniform soil coverage and incorporate into the soil in the spring for protection of strawberries during the following year.

TARGET PEST	NUFOS 4E (pints/acre)
garden symphylans grub	2

**Foliar Application**

Apply as a broadcast foliar spray when buds first appear and repeat application 10 to 14 days later. Use a minimum spray volume of 40 gpa.

TARGET PEST	NUFOS 4E (pints/acre)
strawberry bud weevil	1

**Postharvest Application**

Apply as a directed spray to crown of strawberry plants immediately after harvest and after plants are topped. Repeat application, if required, 14 to 18 days later. Use a minimum spray volume of 100 gpa.

TARGET PEST	NUFOS 4E (pints/acre)
strawberry crown moth	1

**Specific Use Precautions:**

- Nufos 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use.
- Phytotoxicity may occur when Nufos 4E is applied to strawberries under conditions of high temperature and drought stress.

**Specific Use Restrictions:**

- **For pre-bloom use only.** Do not apply after berries start to form or when berries are present.
- **Preharvest Interval:** Do not apply within 21 days before harvest.
- **Preplant Application:** Do not make more than 1 application per year of Nufos 4E or other products containing chlorpyrifos.
- **Foliar and Postharvest Applications:** Do not make more than 2 applications per year of Nufos 4E or other products containing chlorpyrifos.

- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first foliar application and within 14 days for postharvest application.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre for preplant incorporation and 1 lb ai chlorpyrifos per acre for foliar and postharvest application.
- **Postharvest application:** Do not sprinkle irrigate for 1 week following application.

**SUGARBEET**  
(Not for Use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Soil Treatment (at Planting or Preplant Incorporated)**

To reduce feeding damage from early season insects such as cutworms, apply at planting or as a preplant treatment and incorporate to a depth of 1 to 2 inches. Do not apply as an in-furrow treatment. Apply 1 pint of Nufos 4E per planted acre to a 10-inch wide band centered over the row for furrows 30 inches apart. (For rows 30 inches apart, this is equivalent to 9.2 fluid ounces of Nufos 4E per 10,000 feet of row.) For other row widths, adjust the spray volume per planted acre in proportion to the length of row actually treated.

**Postemergence Treatment**

Apply specified rate as a broadcast or banded foliar spray. Treat when field counts indicate that damaging insect populations are developing or present.

**Broadcast application:** Apply the specified dosage in water using 2 to 5 gpa of finished spray when using aerial spray equipment or 10 to 30 gallons of water per acre when using ground spray equipment.

**Chemigation:** Nufos 4E may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) Section for application instructions.

**Banded Foliar Spray:** Apply the specified rate within the band using a minimum of 7 gallons of spray volume in a 5- to 7-inch wide band centered over the row. Do not reduce the rate for band applications. Concentrate the full labelled dosage rate (see band rates in table below) in the treated zone. For best results, band-applied treatments should be lightly incorporated, either mechanically or with irrigation.

TARGET PESTS	NUFOS 4E (Pints/acre)	
	Broadcast	Band
grasshoppers (1)	½-1	-
leafminers spider mites	1	2/3
tarnished plant bug ( <i>Lygus</i> )	1	-
fall armyworm yellowstriped armyworm webworms	1 - 2	2/3 - 1 1/3
beet armyworms	1½ - 2	1 - 1 1/3
cutworms flea beetle adults	2	1 1/3
sugar beet root maggot adults (2), (5)	1/2 - 1	-
sugar beet root maggot larvae (3), (5)	-	1 1/3 - 2
sugar beet root maggot larvae (4), (5)	2	1 1/3 - 2

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Grasshoppers:** The low rate will control small nymphs (1<sup>st</sup> through 3<sup>rd</sup> instar).
2. **Sugarbeet root maggot adults:** Apply anytime from 7 days before until 3 days after peak adult emergence in order to target adults present at time of application based on local field trap monitoring.
3. **Sugarbeet root maggot larvae:** Use as **primary treatment** to control root maggot larvae. Base application timing on local field trap monitoring. Apply anytime from 7 days before until 3 days after peak adult emergence.
4. **Sugarbeet root maggot larvae:** use as **supplemental postemergence treatment** following an at-plant insecticide application for control of root maggot larvae. Base application timing on local field trap monitoring. Apply anytime from 7 days before until 3 days after peak adult emergence.
5. To prevent potential development of insecticide resistance in **sugarbeet root maggot**, producers are encouraged to take the following steps: (1) avoid making more than 2 applications of Nufos 4E per season when adults are active; (2) if an organophosphate insecticide was applied at planting, make no more than 1 postemergence application of Nufos 4E when adults are active.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 30 days of harvest of beet roots and tops.
- Do not apply more than 6 pints of Nufos 4E (3 lbs. a.i. chlorpyrifos) per acre per season.
- Do not make more than 3 applications of Nufos 4E or other products containing chlorpyrifos per season.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Maximum single application rate is 1 lb ai chlorpyrifos per acre.
- Do not allow meat or dairy animals to graze in treated areas or harvest treated beet tops as feed for meat or dairy animals within 30 days of last treatment.
- To avoid unacceptable crop injury, do not tank mix Nufos 4E with Quadris or Headline. Quadris or Headline should not be tank mixed with any EC formulation or any tank mix containing an oil adjuvant.

**SUNFLOWER  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

**Preplant Incorporation Treatment**

Broadcast apply to soil surface in a minimum spray volume of 10 gpa using suitable ground spray equipment. On the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator, or equivalent equipment. Use a higher rate in the rate range when there is increased pest pressure.

TARGET PESTS	NUFOS 4E (Pints/acre)
cutworms	2-4

**Postemergence Broadcast Treatment**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Use a higher rate in the rate range when there is increased pest pressure.

TARGET PESTS	NUFOS 4E (Pints/acre)
grasshoppers	1
banded sunflower moth, seed weevil (4), stem weevil (2), sunflower beetle larvae and adults (1), sunflower moth (3), woolly bears	1-1½



cutworms	2
tarnished plant bug ( <i>Lygus</i> ) (5)	1-2

Number in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- Sunflower beetle:** For control of larvae or adults, treat when field counts indicate 10 larvae or 1 to 2 adults per seedling.
- Stem weevil:** Optimal treatment time is within 5 to 7 days after adult weevils begin to appear.
- Sunflower moth:** To control, make first application during early 1% to 5% bloom stage.
- Seed weevil:** To control, apply when field counts indicate 10 to 12 adults per plant for oil crop varieties and 1 to 3 adults per plant on confectionery crop varieties.
- Tarnished plant bug (*Lygus*):** use the higher rate in the rate range where populations are heavy. It is recommended to apply at the onset of pollen spread or approximately 10% bloom (R-5 growth stage). For best protection, make a second application 10 days later. Use sufficient water to ensure thorough coverage of treated plants.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 42 days before harvest.
- Do not apply more than 6 pints of Nufos 4E (3 lb ai chlorpyrifos) per acre per season.
- Do not make more than 3 applications per season of Nufos 4E or other products containing chlorpyrifos for a total of 6 pints of Nufos 4E (3 lb. ai chlorpyrifos) per acre per season.
- Do not make a second application of Nufos 4E within 10 days of the first application.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre for preplant incorporation and 1.5 lb ai chlorpyrifos per acre for postemergence broadcast treatment.
- Do not allow meat or dairy animals to graze in treated areas.

**SWEET POTATO**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply to the soil surface as a preplant broadcast spray to reduce the feeding damage caused by listed pests. Use a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant sweet potatoes in the usual manner no more than 14 days after treatment. Delaying planting more than 14 days after application will reduce the time interval of protection against feeding damage.

TARGET PESTS	NUFOS 4E (Pints/acre)
<i>Conderus</i> (wireworm)	4
<i>Systema</i> (flea beetle)	
sweet potato flea beetle	

**Specific Use Precaution:**

- Nufos 4E will not control false wireworms, white fringe beetle or other grubs that attack sweet potatoes.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not harvest within 125 days of treatment.
- Do not make more than 1 application of Nufos 4E per season.
- Maximum single application rate is 2 lb ai chlorpyrifos per acre.

**TOBACCO**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a preplant broadcast spray to reduce the feeding damage caused by listed pests. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. The application of Nufos 4E will also suppress the movement of imported fire ants into the treated fields.

Before broadcast application of Nufos 4E onto existing beds, knock down beds to final shape for transplanting. Use of PTO driven implements that will incorporate Nufos 4E to a depth of 4 inches is recommended.

TARGET PESTS	NUFOS 4E (Pints Per Acre)
Cutworms Fire ants (suppression) flea beetles mole crickets root maggots wireworms	2

To control the above listed pests and suppress populations of rootknot nematodes in all tobacco growing regions, use Nufos 4E in a tank mix with Nematicur 3 at the rate of 2 pints of Nufos 4E plus 4 quarts of Nematicur 3 nematicide per acre. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for Nematicur 3 used in combination with Nufos 4E. Apply the specified rate(s) to the soil surface in a spray volume of 10 gpa or more 24 to 48 hours before bedding and transplanting. Immediately following application, incorporate into the soil to a depth of at least 4 inches using suitable equipment. Where the nematode species *Meloidogyne arenaria* or *M. javanica* are present or high populations of *M. incognita*, apply Telone\* II soil fumigant at the listed label rate.

**Specific Use Restrictions:**

- Do not make more than one application of Nufos 4E or other products containing chlorpyrifos per season.
- Maximum single application rate is 1 lb. a.i. chlorpyrifos per acre per season.

**TREE NUTS  
(Foliar Sprays)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply Nufos 4E at the dosages indicated by application as a foliar spray to control pests listed in the following table. Mix the required dosage in sufficient water to ensure thorough and complete coverage of the foliage and crop and apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For dilute sprays applied to tree nut crops, mix the required dosage in sufficient water to allow for spray to runoff. For concentrate sprays, apply an equivalent amount of Nufos 4E per acre. Treat when pests appear or in accordance with local conditions. Aerial application may result in less effective insect because of reduced coverage. **Note:** Do not aerially apply in Mississippi. Consult your State Agricultural Experiment Station, certified pest control advisor, or extension service specialist for specific use information in your area.

CROP	TARGET PESTS	NUFOS 4E (pint/acre)
almond	navel orangeworm, peach twig borer, San Jose scale, leaf footed plant bug	4
filbert	eye-spotted bud moth, filbert aphid, filbert leafroller, filbert worm, obliquebanded leafroller, omnivorous leaftier, winter moth	3-4
pecan	blackmargined aphid (1) spittlebugs (2) yellow pecan aphid (1)	1 - 4
	fall webworm pecan nut casebearer	1.5 - 4

	black pecan aphid hickory shuckworm (3) <i>Phylloxera</i> spp. (4) pecan leaf scorch mite (suppression) (5)	2 - 4
walnut	codling moth, walnut scale, walnut husk fly	4

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. For control of **yellow pecan aphid** and **blackmargined aphid**, apply in tank mix combination with the recommended rate of pyrethroid insecticide labelled for control or suppression of these aphids.
2. For control of **spittlebug**, use a dosage of 2 to 4 pint per acre for concentrate sprays.
3. For best results against **hickory shuckworm**, make 2 applications, 10 to 14 days apart.
4. For best control of ***Phylloxera* spp.**, make 2 applications at a 10-day interval using a minimum of 1 pint of Nufos 4E per acre starting at bud swell.
5. For suppression of **pecan leaf scorch mite**, use a preventative program.

**Specific Use Precautions:**

- Nufos 4E is highly toxic to bees exposed to direct treatment and should not be applied when bees are foraging in the treated area.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Nufos 4E.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days of harvest of almonds, filberts and walnuts, or 28 days of harvest of pecans.
- Do not apply more than 8 pints of Nufos 4E (4lb ai chlorpyrifos) per acre per season as a foliar spray.
- Do not make more than 3 total applications per season of Nufos 4E or other products containing chlorpyrifos to almonds, pecans and filberts and no more than 2 applications per season on walnuts, for a maximum of 8 pints (4 lb. ai chlorpyrifos) per acre per season. If the 4 pint per acre application rate is used for almonds, pecans, and filberts, then only a maximum of 2 applications may be made.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated orchards.

**TREE FRUITS AND TREE NUTS (DORMANT/DELAYED DORMANT SPRAYS)  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days for tree fruits and 24 hours for tree nuts unless PPE required for early entry is worn.

Apply as a dormant or delayed dormant spray. While Nufos 4E may be used without oil, oil is recommended to control additional pests such as European red mites. See precautions for use of oil below. Apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For **dilute sprays** (greater than 200 gpa), use sufficient spray volume to completely wet tree foliage, but not to point of runoff. For **concentrate sprays** (less than 200 gpa), uniformly apply an equivalent amount of Nufos 4E per acre.

Use a higher rate in the rate range when there is increased pest pressure.

CROPS	TARGET PESTS	NUFOS 4E (pint/100 gal) (1)
apple	rosy apple aphid, San Jose scale, <i>Lygus</i> , pandemis leafroller, climbing cutworms, obliquebanded leafroller	1/2-4

**Specific Use Precautions:**

- Cold or dry conditions may cause Nufos 4E plus oil sprays to infuse into trees, resulting in bud damage or bud drop. Do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Nufos 4E.
- Avoid contact with foliage in sweet cherries as premature leaf drop may result.

**Specific Use Restrictions:**

- Do not use more than 4 pints of Nufos 4E (2 lb ai chlorpyrifos) per acre per season as a dormant/delayed dormant application.
- Do not make a soil or foliar application of Nufos 4E or products containing chlorpyrifos within 10 days of a dormant/delayed dormant application of chlorpyrifos to the orchard.
- Make only 1 application of chlorpyrifos during the dormant season.
- Only one application of any chlorpyrifos containing product can be made per year. The application can be either a pre-bloom dormant/dormant delayed to the canopy or the trunk, or a post-bloom application to the lower 4 feet of the trunk.
- Post-bloom application to apples is prohibited.
- Do not allow meat or dairy animals to graze in treated orchards.

**Additional Restrictions Specific to California:**

- Do not use more than 1% dormant oil in almond orchards less than 4 years old.
- Use a minimum of 250 gallons of total spray volume per acre.
- Use up to 2% Supreme oil with no more than 4 gpa on almonds.
- Use up to 2% Supreme oil with no more than 6 gpa on peaches and nectarines.
- Refer to the University of California pest management guide for apples, pears, plums and prunes.
- In orchards with high overwintering populations of European red mite or brown almond mite, use higher spray volumes that allow for the use of higher per acre rates of oil.
- Do not use any adjuvants or surfactants in addition to or as a substitute for a petroleum spray oil in a tank mix with Nufos 4E.
- Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

CROPS	TARGET PESTS	NUFOS 4E (pint/100 gal) (1)
almond cherry nectarine peach pear plum prune	American plum borer, brown almond mite, climbing cutworms, European red mite, greater peach tree borer, lesser peach tree borer, mealy plum aphids, peach twig borers, pear psylla adults, San Jose scales	1/2-4

Number in parentheses (-) refer to Pest-Specific Use Directions.

**Specific Use Precautions:**

- Cold or dry conditions may cause Nufos 4E plus oil sprays to infuse into trees, resulting in bud damage or bud drop. Do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Nufos 4E.
- Avoid contact with foliage in sweet cherries as premature leaf drop may result.

**Specific Use Restrictions:**

- Do not use more than 4 pints of Nufos 4E (2 lb ai chlorpyrifos) per acre per season as a dormant/delayed dormant application.

- Do not make a soil or foliar application of Nufos 4E or products containing chlorpyrifos within 10 days of a dormant/delayed dormant application of chlorpyrifos to the orchard.
- Make only 1 application of chlorpyrifos during the dormant season.
- Do not allow meat or dairy animals to graze in treated orchards.

**Additional Restrictions Specific to California:**

- Do not use more than 1% dormant oil in almond orchards less than 4 years old.
- Use a minimum of 250 gallons of total spray volume per acre.
- Use up to 2% Supreme oil with no more than 4 gpa on almonds.
- Use up to 2% Supreme oil with no more than 6 gpa on peaches and nectarines.
- Refer to the University of California pest management guide for apples, pears, plums and prunes.
- In orchards with high overwintering populations of European red mite or brown almond mite, use higher spray volumes that allow for the use of higher per acre rates of oil.
- Do not use any adjuvants or surfactants in addition to or as a substitute for a petroleum spray oil in a tank mix with Nufos 4E.
- Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

**TREE FRUITS AND TREE NUTS (Trunk Spray or Preplant Dip)  
(Not for Use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days for tree fruits and 24 hours for tree nuts unless PPE required for early entry is worn.

Apply Nufos 4E to tree trunks and lower branches using a coarse, low-pressure spray to control pests listed in the following table. Use a higher rate in the rate range when there is increased pest pressure. Unless otherwise specified, a second application may be made after 2 weeks and a third application may be made after harvest. Avoid spray contact with foliage in sweet cherries as premature leaf drop may result. Consult your State Agricultural Experiment Station or Extension Service Specialist for proper application timing for your area.

CROPS	TARGET PESTS	NUFOS 4E (quart/100 gal)
cherry	American plum borer greater peach tree borer lesser peach tree borer	1.5-3
almond peach nectarine	peach tree borers (1) (2)	3

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Preplant Dip Application (Peaches and Nectarines Only).** For preplant control of **peachtree borer**, use Nufos 4E at the equivalent application rate of 3 quarts per 100 gallons of water. Dip trees several inches above the grafting bud scar and plant immediately or allow them to dry before returning to storage. Do not allow peach trees to remain in contact with the dip solution.
2. For control of **peach tree borer** in established trees, apply before newly hatched borers enter the tree. Use as a coarse, low-pressure trunk spray and thoroughly wet all bark areas from ground level to scaffold limbs. Do not allow spray to contact fruit. Consult written recommendations provided by your State Agricultural Experiment Station or Extension Service Specialist for proper time to treat in your area.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days of harvest of almonds, peaches and nectarines or within 21 days before harvest of cherries.
- Do not make more than 1 chlorpyrifos application per year in peaches and nectarines and no more than 3 chlorpyrifos applications per year in cherries.
- Do not make a second application of Nufos 4E or other product containing chlorpyrifos within 10 days of the first application.

Do not allow meat or dairy animals to graze in treated orchards.

**TURFGRASS**

Apply to turfgrass grown for sod. Dilute Nufos 4E in water and apply using suitable application equipment. For best results, turf should be moist at time of treatment.

Pests	Amount of Nufos 4E per	
	fl oz/1000 sq ft	pint/acre
ants (excluding fire, carpenter, harvester, and pharaoh ants) armyworms (such as: beet, fall, yellowstriped) chiggers chinch bugs crickets cutworms earwigs European crane fly larvae fiery skipper gnats	grasshoppers greenbug aphids green June beetle grubs leafhoppers Lucerne moth millipedes mites (such as: clover, Bermudagrass stunt, winter grain) pillbugs springtails sod webworms (lawn moths) (1) sowbugs	$\frac{3}{4}$ 2
billbug adults (such as: bluegrass, Denver, hunting) (2)		$\frac{3}{4}$ -1 $\frac{1}{2}$ 2-4
annual bluegrass weevil ( <i>Hyperodes</i> ) (3) black turfgrass ataenius adults (4) mole crickets (5)		1 $\frac{1}{2}$ 4
white grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, and northern and southern masked chafers) (6)		1 $\frac{1}{2}$ - 3 4-8

Numbers in parentheses (-) refer to Specific Use Directions below.

**Specific Use Directions:**

1. For **sod webworms**, watering or mowing of the treated area should be delayed for 12 to 24 hours after treatment.
2. For **billbugs**, spray early in the season just prior to or coinciding with first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
3. To control **annual bluegrass weevil**, spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Extension Service Specialist.
4. For **black turfgrass ataenius** adults, spray early in the season as recommended by your local Agricultural Extension Service Specialist. A repeat application may be needed 1 to 2 weeks later.
5. To control **mole crickets** in turfgrass, apply Nufos 4E through high-pressure injection or other suitable subsurface placement application equipment. Depending on the application equipment used, follow the manufacturer's recommendation for calibration and the volume of spray per acre needed to provide control or as recommended by your local Agricultural Extension Service Specialist. For best results, apply when young nymphs are active.
6. For **white grubs**, spray when grubs are young and actively feeding near the soil surface, usually during late July and August or as recommended by your local Agricultural Extension Service Specialist. For best results, soil should be moist prior to treatment. **For best results, immediately after spraying, irrigate the treated area with ½ to 1 inch of water to wash the insecticide into the thatch and underlying soil.**

**WHEAT**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

For use only in Arizona, California, Colorado, Idaho, Kansas, Minnesota, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming.

**Foliar Application:**

Mix the required dosage with water and apply in a minimum of 2 gallons per acre finished spray volume. Apply using aerial (fixed wing or helicopter) or power-operated ground spray equipment.

**Chemigation:** Nufos 4E may be applied through sprinkler-irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	NUFOS 4E (pint/acre)
aphids (such as Russian wheat aphid, greenbug, English grain aphid) (1) brown wheat mite grasshoppers	½ - 1
army cutworms (2) armyworms (3) cereal leaf beetle (4) cutworms (suppression) (2) wheat midge (5)	1

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. Consult university extension bulletins for local treatment recommendations.
2. Control may be reduced under high temperature conditions (greater than 80°F), under dry soil conditions, or if larvae are more than ½ inch long.
3. Suppression should be expected under conditions of heavy pest populations or large worms.
4. Target application when eggs are near hatching and larvae is emerging as monitored by plant inspection.
5. For control of **wheat midge**, treatment is recommended when 75% of the wheat heads have emerged from the boot and when midge adults are found in the crop (1 midge per 4-5 heads). If possible, apply in the late afternoon or early evening when temperatures exceed 50°F and wind speed is less than 7 mph.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days of harvest for forage and hay and within 28 days of harvest for grain or straw.
- Do not make more than two applications of Nufos 4E or products containing chlorpyrifos per season.
- Maximum single application rate is 0.5 lb ai chlorpyrifos per acre.
- Do not allow meat or dairy animals to graze or otherwise feed treated forage to livestock within 14 days of application.
- Do not feed straw from treated wheat within 28 days of application.

**WARRANTY DISCLAIMER**

Cheminova warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CHEMINOVA MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Cheminova or the Seller. All such risks shall be assumed by Buyer and User. Buyer and User agree to hold Cheminova and the Seller harmless for any claims related to such factors.

**LIMITATION OF REMEDIES**

To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to one of the following, at Cheminova's election:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

To the extent consistent with applicable law, Cheminova shall not be liable for consequential, incidental, or special damages or losses.

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